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FORAMINIFERA FROM THE ROSS SEA

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INTRODUCTION

The bottom mud from a 1680 foot sounding in the Bay of Whales, Ross Sea (lat. 78° 34′ S., long. 163° 48′ W.) was collected for the author by Dr. L. M. Gould, geologist of the first Byrd Antarctic Expedition. This location marks the most southerly point at which Foraminifera have been collected, and is the only station of its kind in the eastern two-thirds of the Ross Sea. It is about ninety miles from the nearest known land.

The sample consisted of about 200 cc. of gray mud, which left a residue after decanting of nearly 3 cc. of particles ranging from 0.2 mm. to 7 mm. in diameter. The organic portion of the residue contained, in order of abundance, Foraminifera, Radiolaria, siliceous sponge spicules, spicules of Alcyonaria, and decomposed worm tubes.

THE FORAMINIFERA

After washing and sorting, about 350 identifiable specimens of Foraminifera were obtained. These were distributed among the following species in the numbers indicated:

Thurammina protea Earland	1
Marsipella elongata Norman	1
Bathysiphon filiformis M. Sars	2
Saccorhiza ramosa (H. B. Brady)	8
Saccorhiza sp	1
Ammodiscus incertus (D'Orbigny)	5
Tolypammina vagans (H. B. Brady)	2
Miliammina arenacea (Chapman)	41
Reophax scorpiurus Montfort	29
Reophax dentaliniformis H. B. Brady	2
Reophax spiculifera H. B. Brady	5
Reophax nodulosa H. B. Brady	4
Reophax distans H. B. Brady	17
Trochammina rotaliformis Wright	40
Trochammina globulosa Cushman	3
Trochammina nitida H. B. Brady	4

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Trochammina turbinata (H. B. Brady)	2
Trochammina nana (H. B. Brady)	22
Trochammina rossensis, n. sp.	13
Ammoglobigerina globigeriniformis (Parker and Jones)	13
Haplophragmoides glomeratus (H. B. Brady)	9
Haplophragmoides trullissatus (H. B. Brady)	9
Haplophragmoides canariensis (D'Orbigny)	49
Haplophragmoides umbilicatulus Pearcey	1
Haplophragmoides subglobosus (G. O. Sars)	1
Cyclammina gouldi, n. sp.	19
Verneuilina bradyi Cushman	5
Gaudryina sp.	1
Textularia tenuissima Earland	11
Textularia nitens Earland	6
Nonion umbilicatulus (Montagu)	3
Nonion pompilioides (Fichtel and Moll)	2
Nonion depressulus (Walker and Jacob)	3
Cibicides cf. *refulgens* Montfort	3
Globigerina pachyderma (Ehrenberg)	6
Cassidulina subglobosa H. B. Brady	7

Although Foraminifera with secreted calcareous tests comprise one-sixth of the species, they make up only 7.2 per cent of the individuals present. This condition is markedly different from that found by the 'Terra Nova' expedition[1] on the western side of the Ross Sea, where 60 per cent of the species collected were calcareous.

A survey of the data available seems to indicate a hitherto unrecognized system in the distribution of antarctic Foraminifera. Within sixty miles of the coasts of Antarctica and the larger sub-antarctic islands the calcareous species, despite the coldness of the water, are the predominant element in the fauna. This condition prevails to depths of 2000 feet, beyond which point we have little evidence at the present time. Farther offshore, in similar depths, the agglutinated species become the more abundant forms. The change in relative abundance results partly from an actual increase in the agglutinated forms, but chiefly from the almost complete elimination of the Lagenidae and Rotaliidae at the greater distances.

Nearly half of the specimens of calcareous species found at the Bay of Whales were distorted or otherwise atypical. *Cibicides* cf. *refulgens* Montfort, for example, develops in the later chambers an imperforate, porcellanous wall with a chitinous lining. If the younger specimens were not more typical these differences would be sufficient to remove the Bay of Whales forms not only from the genus but even the family in which they are normally placed.

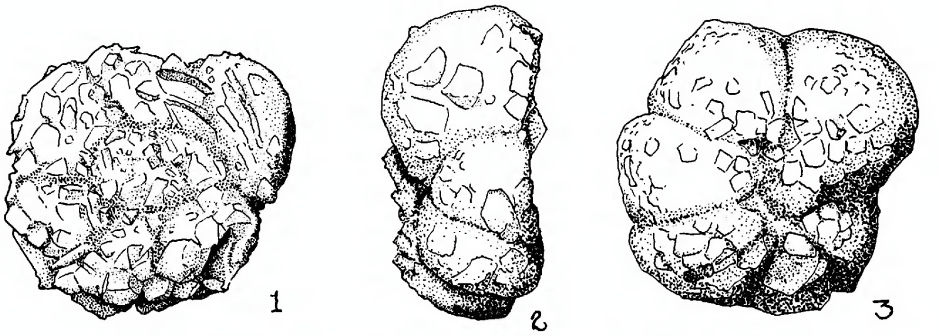
[1] 1922, British Antarctic ('Terra Nova') Exped., Zool., VI, No. 2.

Descriptions of New Species

Trochammina rossensis, new species

Figures 1 to 3

Type Description.—Test turbinate, rotaloid, two coils visible on the flat dorsal side, only the last whorl showing on the deep ventral side; periphery slightly lobulate in lateral view; chambers appressed on the dorsal surface, less so ventrally, six in the last whorl; sutures slightly depressed, obscure dorsally; wall of unassorted sand grains, usually coarser on the dorsal than on the ventral side; cementing material clay with chitinous or ferruginous bonding; surface rough, especially on the dorsal side; aperture usually obscure, a narrow slit at the base of the last septum, extending from the umbilicus one-half the distance to the periphery; color white or yellow-brown. Diameter of holotype, 0.75 mm.



Figs. 1–3. *Trochammina rossensis*, new species, holotype, × 50.
1. Dorsal view. 2. Peripheral view. 3. Ventral view.

Type.—The holotype is deposited in The American Museum of Natural History (Cat. No. A. M. N. H. 655). The three specimens under Cat. No. A. M. N. H. 656, are paratypes.

Type Locality.—Bay of Whales, Ross Sea, depth 1680 feet.

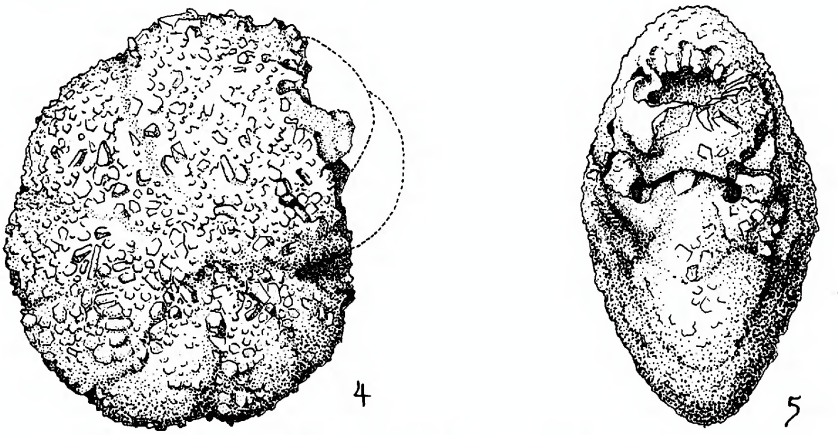
The flat dorsal and markedly convex ventral surfaces of this species will distinguish it from others of the genus which have a similar number of chambers in the last whorl.

Cyclammina gouldi, new species

Figures 4 and 5

Type Description.—Test nautiloid, biconvex in adults, somewhat umbilicate in young; edge narrowly rounded in adults, blunt in young specimens; periphery nearly smooth in lateral view; chambers appressed, nine in the last whorl, the latest ones showing a tendency for the coil to become evolute; sutures obscure, flush with the surface; wall of fine sand, poorly agglutinated with a feruruginous or chitinous cement; surface moderately smooth but not polished; aperture a curved slit at the base of the last septum, supplemented in adult chambers by other round apertures,

chiefly on the peripheral margin but also on the septal face and the equitant portions of the chamber wall; interior of adult chambers almost free of labyrinthic deposits; equitant portions of each chamber nearly separated internally from the rest of the chamber, communicating with it through constricted round orifices; color yellow or gray. Diameter of holotype, 1 mm.



Figs. 4, 5. *Cyclammina gouldi*, new species, holotype, × 50.

4. Lateral view with outlines of broken terminal chambers restored. 5. Apertural view, showing orifices leading to the equitant parts of the last chamber, and broken peripheral apertures of the penultimate chamber.

TYPE.—The holotype and paratypes are deposited in The American Museum of Natural History under Cat. Nos. A. M. N. H. 657 and A. M. N. H. 658, respectively.

TYPE LOCALITY.—Bay of Whales, Ross Sea, depth 1680 feet.

The small number of chambers will serve to separate this species from other Cyclamminae with the exception of *C. bradyi* Cushman, which has a simple aperture and is smoothly finished.

The cementing material weakens on being dried, and the test will disintegrate in a few days if replaced in water. It crumbles in twenty seconds on being immersed in dilute hydrochloric acid, but without evolution of any gas.